

Overmoulding Strength of PP and ABS Systems: Influence of Tool and Melt Temperatures

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Polymers and polymer composites are increasingly replacing metals in various industry sectors, including automotive, aerospace, and sports equipment, due to their advantageous strength-to-weight ratio and design flexibility. Overmoulding, a multi-material injection moulding process, offers efficient manufacturing of complex parts with tailored properties. This study investigates the overmoulding strength of polypropylene (PP) with PP and acrylonitrile butadiene styrene (ABS) overmoulded with ABS, focusing on the influence of critical processing parameters: tool temperature and melt temperature. Understanding the relationship between these temperatures and the resulting overmould strength is crucial for optimizing the process and ensuring structural integrity in applications. Higher melt and tool temperatures result in improved overmould strength reaching up to 70 % of strength of a specimen produced with single shot.

Keywords: Overmoulding, Tool Temperature, Melt Temperature, Overmould Strength, Injection Moulding.

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